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ASSIGNMENT BOOKLET
SCN3240 Chemistry 30
Module 7 Assignment

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Chemistry 30

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we explore

Principles of Chemical Equilibrium

Module 7

Assignment Booklet

Red Deer Catholic Regional Schools
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Calgary Board of Education
Alberta Education

FOR TEACHER'S USE ONLY

Summary

	Total Possible Marks	Your Mark
Lesson 2 Assignment		
Lesson 3 Assignment		
Lesson 5 Assignment		

Teacher's Comments

Chemistry 30 Learn EveryWare
Module 7: Principles of Chemical Equilibrium
Assignment Booklet
ISBN 978-0-7741-3184-1

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Students	✓
Teachers	✓
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General Public	
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Read all parts of each assignment carefully, and record your answers in the appropriate places. If you have difficulty with an assignment, review the relevant sections of the lesson and the textbook. Be sure to proofread your answers carefully before submitting your Assignment Booklet.

MODULE 7: LESSON 2 ASSIGNMENT

Lesson 2 Assignment: Dynamic Equilibrium

Pre-Lab

1. Write the balanced chemical equation for the reaction between $Na_2SO_4(aq)$ and $CaCl_2(aq)$.

2. Explain the use of a solution of $Ba(NO_3)_2(aq)$ to test the filtrate.

3. Write a balanced equation for the reaction used to test the filtrate.

Hypothesis

4. Describe what you expect to occur when the products for the four trials are tested. Where possible, make reference to your understanding of equilibrium systems using appropriate terms and conventions.

Analysis

5. Explain why the mass of precipitate did not differ in the second, third, and fourth trials.

6. Explain the results obtained for the test on the filtrate.

7. How do the observations from this investigation support the concept of an equilibrium system having a forward and a reverse reaction?

MODULE 7: LESSON 3 ASSIGNMENT

Lesson 3 Assignment: Position of an Equilibrium

Mini Investigation: Modelling Dynamic Equilibrium

1. Graph the data for System 1. Paste a copy of your graph in the space provided.

2. Graph the data for System 1 with straws switched. Paste a copy of your graph in the space provided.

3. Answer questions a–e on page 678 of the textbook.

4. Graph the data for System 2. Paste a copy of your graph in the space provided.

5. Graph the data for System 3. Paste a copy of your graph in the space provided.

6. State a possible hypothesis being investigated using Systems 2 and 3. Did the results demonstrate the expected result? Use the data to support your opinion.

MODULE 7: LESSON 5 ASSIGNMENT

1. Complete "Section 15.1" question 1 parts c, d, and g on page 688 in the textbook.

2. Complete "Section 15.1" question 3 parts a, b, and c on page 688 in the textbook.

3. Complete "Section 15.1" question 4 parts c and d on page 688 in the textbook.

4. Calculate the equilibrium constant for the following systems:

   a. $N_2(g) + 3\ H_2(g) \rightarrow 2\ NH_3(g)$, where the equilibrium concentrations are

   $N_2(g) = 2.12$ mol/L
   $H_2(g) = 1.75$ mol/L
   $NH_3(g) = 84.3$ mol/L

   b. $H_2(g) + I_2(g) \rightarrow 2\ HI(g)$, where the equilibrium concentrations are

   $H_2(g) = 1.83 \times 10^{-3}$ mol/L
   $I_2(g) = 3.13 \times 10^{-3}$ mol/L
   $HI(g) = 1.77 \times 10^{-2}$ mol/L

5. Calculate the concentration of the products of the following equilibrium when the equilibrium constant is 12.3 and the equilibrium concentration of $NOBr_2$ is 2.17 mol/L.

$NOBr_2\ (g) \rightarrow NO(g) + Br_2(g)$

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